CDSA DISC PLAYER

USER MANUAL

CAUTION

This product is a Class 1 laser product, but this product contains a laser diode higher than Class 1. To ensure continued safety do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personel. The following caution label appears on your unit on the rear panel:

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The use of optical instruments with this product will increase eye hazard.

INFORMATION TO THE USER

Alteration or modification carried out without appropriate approval may invalidate the user's right to operate the equipment.

WARRANTY

EMM Labs warrants the CDSA product against defects in material and workmanship under normal use and service for a period of time specified by the product's serial number from the date of first delivery to the owner. The warranty time period is 1 year for the drive unit and 5 years for all other parts and is limited to the original owner.
EMM Labs will pay for return shipping charges back to the owner when the product is sent to EMM Labs within the first 90 days after purchase. Otherwise, owner will be responsible for all shipping charges to and from EMM Labs.
For all warranty claims, a copy of the original invoice must accompany the product.
Opening the product or modifying it in any way by the owner, including but not limited to cryogenic treatment, will void any warranty.
Please contact EMM Labs (support@emmlabs.com) for RMA number and shipping instructions before shipping any product to EMM Labs.

EMM Labs products are sold worldwide through authorized dealers with restricted territories. If any EMM Labs product is purchased from non-authorized dealers or from a dealer selling outside his / her authorized territory all warranties will be void.

CDSA Disc Player

The CDSA is a disc player for CD and stereo SA-CD. While it does play the mulichannel program of SA-CD discs it only provides 2 channels of analog output. As a unique feature, the CDSA up-samples any PCM signal to twice the sample rate as it is used on SA-CD's before converting it to the analog output.

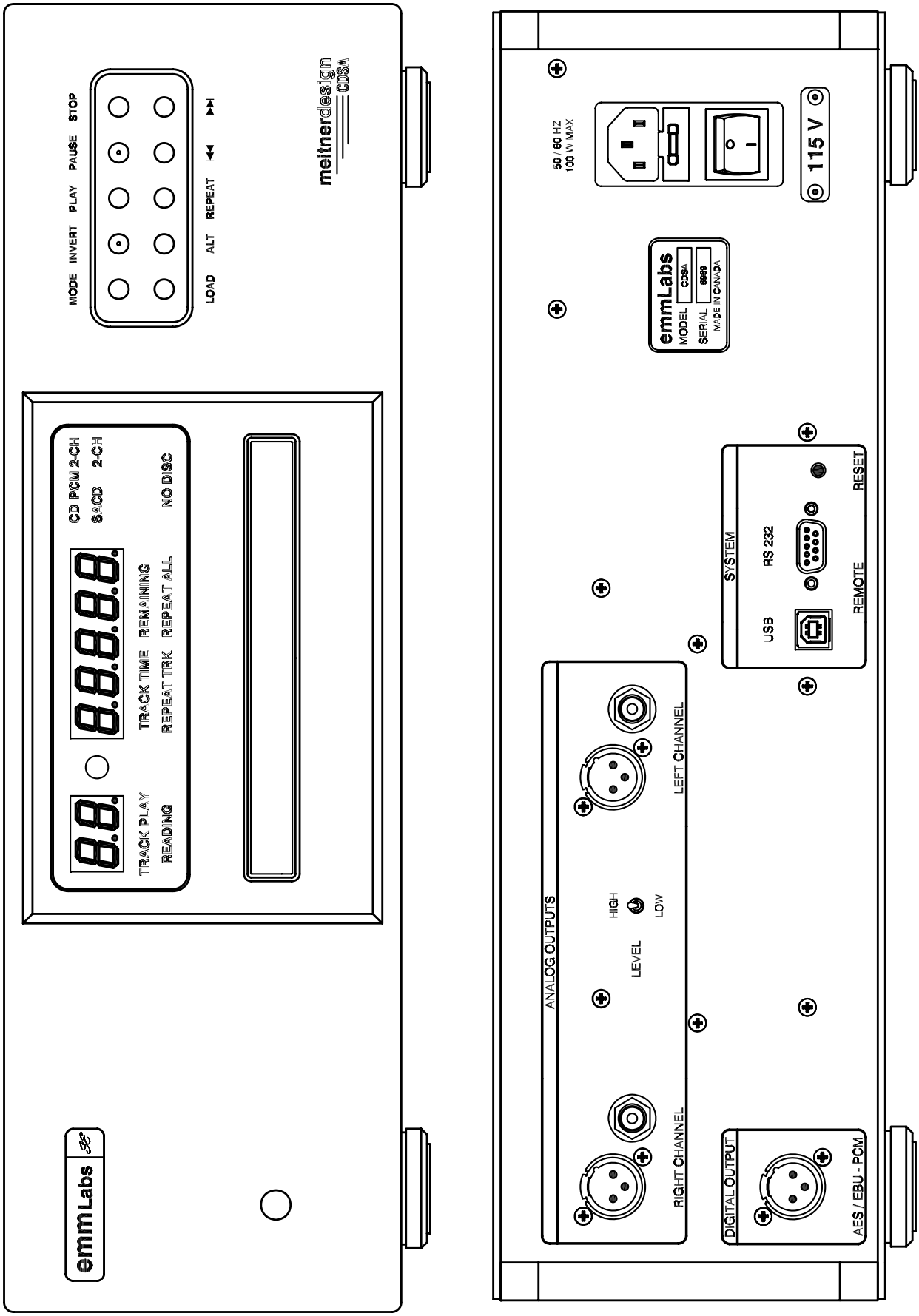
Features

- Supported disc formats:
  - Redbook CD
  - Stereo SA-CD
  - MP3
- Digital output: AES/EBU
- Analog outputs:
  - Impedances: 100Ω balanced (XLR), 50Ω unbalanced (RCA)
  - 2 user selectable levels:

Low position:	XLR outputs:	4V (+14.38dBu)
	RCA outputs:	2V (+8.353dBu)
High position:	XLR outputs:	7.2V (+19.38dBu)
	RCA outputs:	3.6V (+13.34dBu)

Note: *XLR outputs are balanced with pin 2 hot (+), pin 3 cold (-) and pin 1 ground.*

- Proprietary MDAT technology for upsampling CD playback to 5.6MHz
- Proprietary Dual Differential DAC Circuit (**not** based on any standard off-the-shelf available DAC chip).
- Exclusive Composite Laminate Circuit Boards
- System control via Infrared remote and serial RS-232
- USB port for future software upgrades (see Appendix B)
- Power supply
  - Power factor corrected
  - Factory set to 100V or 115V or 230V, 50/60Hz
  - Power consumption: max. 60W
- Dimensions W x D x H: 435 x 400 x 140mm
- Weight: 12kg


MODE INVERT PLAY PAUSE STOP
LOAD ALT REPEAT
meitnerdesign
CDSA
CD PCM 2-CH
SACD 2-CH
TRACK TIME REMAINING
REPEAT TRK REPEAT ALL
NO DISC
TRACK PLAY
READING
emmLabs
50 / 60 HZ
100 W MAX
115 V
emmLabs
MODEL CDSA
SERIAL 0000
MADE IN CANADA
SYSTEM
RS 232
USB
REMOTE
RESET
ANALOG OUTPUTS
HIGH
LOW
LEVEL
LEFT CHANNEL
RIGHT CHANNEL
DIGITAL OUTPUT
AES / EBU - PCM

Operation

Power The main power switch is on the back of the unit. The aluminum power button on the front is a momentary switch that toggles the operation between power on and off mode every time the user pushes it. From the wired remote control the CDSA can be put into Standby mode, whereby the power supply and other vital circuits remain powered.

Switches on rear panel of CDSA

RESET:	Used in connection with software upgrades via the USB port. Should not be used during normal operation.
LEVEL:	Selects high or low level for analog outputs (see page 3 for exact values)

Front Panel Keys and Indicators

MODE:	If a hybrid SA-CD is played this button can be pressed to switch between Redbook CD and SA-CD stereo playback (the player has to be in Stop in order to switch disc formats).
INVERT:	Inverts polarity (absolute phase) of analog and digital outputs. The inversion is done in the digital domain.
PLAY:	Starts playback or continues it from Pause mode.
PAUSE:	Pauses playback (press PLAY to continue).
STOP:	Stops playback, can also be used to close tray without automatic beginning of playback.
LOAD:	Opens and closes disc tray
ALT:	This key is currently not used.
REPEAT:	This buttons toggles through 3 states: repeat off – repeat track (repeats current track) – repeat all (repeats entire disc).
PREVIOUS:	Jumps back a track.
NEXT:	Jumps to next track.

Wired remote control

On the rear panel you can find a DIN 9-pin (RS-232) connector for serial remote control. See appendix for more details. The USB port is currently only used for servicing.

Digital output

The CDSA can be connected to an external D/A converter, such as the EMM Labs DCC2 or others, via the AES/EBU output.

Analog outputs

Before connecting the analog outputs (XLR or RCA) make sure you have the level set that corresponds best to your pre-amp.

Infrared Remote Control

The remote control provides combined functions for all the EMM Labs products. The functions that are relevant to the CDSA specifically are highlighted in blue rectangles in the drawing on the right.

DISC: This function toggles the front panel display on the CDSD on and off while the player continues to operate normally otherwise.

Numeric keys: These buttons can be used to directly access any track on the disc.

MODE: This provides the same functionality as the button on the front panel (i.e.switching between CD and SA-CD stereo playback).

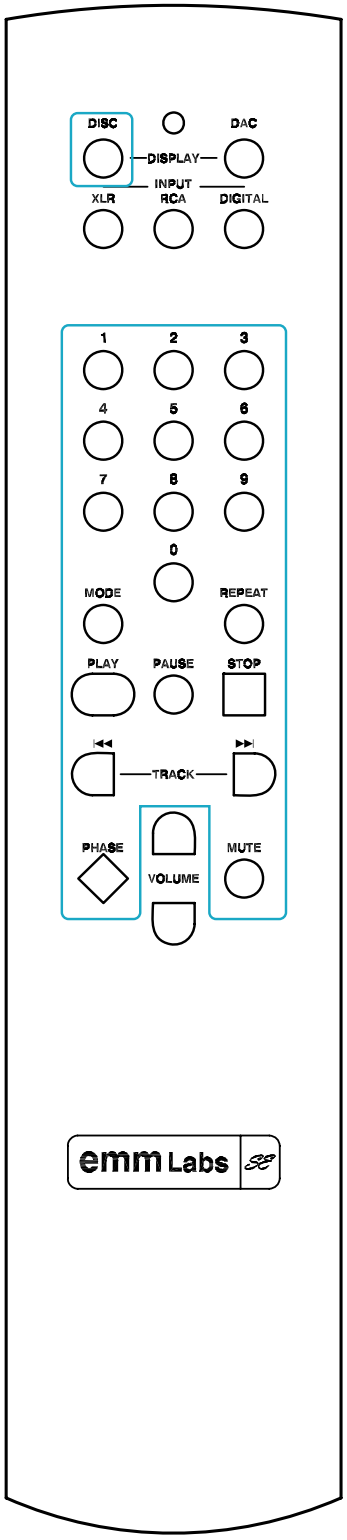
REPEAT: Toggles through No Repeat – Repeat track – Repeat all.

PHASE: Toggles the phase of the analog and digital outputs.

PLAY, PAUSE: These buttons provide the same functionality as the corresponding ones on the front panel.

STOP: This key stops playback and positions the read head on track 1. As the key is pressed a small decimal point is lit behind the digits for the display of the seconds. After releasing the key and right after this decimal point disappears, the key can be pressed again to open the tray.

NEXT, PREV: These keys have the same functionality as the ones on the front panel. When holding them pressed for more than a second, the transport enters a fast scanning mode, which can be exited by pressing PLAY.



Appendix

The following technical notes are provided for informational purposes, and are for use by authorized personnel only.

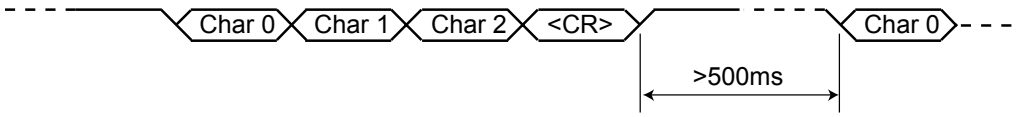
A: Serial Remote Control (RS-232)

The CDSA is equipped with a 9-pin RS232 connector for system remote control via a serial cable (not provided by EMM Labs). The cable should be non-crossed for connections between a PC and the CDSA. The parameters and settings for this link are:

- 19,200 baud
- 8 bits
- 1 stop bit
- no flow control
- no parity bit

Commands to CDSA

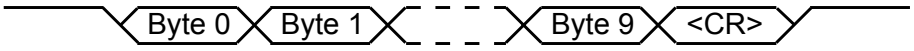
All commands sent to the CDSA consist of 3 ASCII characters followed by a <CR>. Repeating a <CR> will repeat the last command sent. Received commands are not stored in a stack and, therefore, need to be sent in intervals of at least 500ms to allow enough time for the CDSA to execute a command before receiving the next one.



ply	Start playback
pse	Pause playback
stp	Stop playback
mod	Switches between CD and SA-CD stereo layers of a SA-CD disc. The player needs to be in stop mode before the layers can be switched.
rpt	Toggles between no repeat – repeat track – repeat all
prv	Jumps back one track
nxt	Jumps to next track
try	Opens / closes tray
don	Turns front panel display on
dof	Turns front panel display off (unit keeps operating)
pon	Turns CDSA on from Standby mode
pof	Stops playback and sets CDSA to standby
pol	Toggles polarity of analog and digital outputs
tr0, tr1, ..	Direct access to tracks on disc. Track number above 10 can be accessed by first sending a command with the tens, and then a command with the ones.

Status info from CDSA

The CDSA sends back 10 Bytes terminated with a <CR> whenever any status changes.



Byte 0		Seconds ones in ASCII
Byte 1		Seconds tens in ASCII
Byte 2		Minutes ones in ASCII
Byte 3		Minutes tens in ASCII
Byte 4		Hours ones in ASCII
Byte 5		Track number ones in ASCII
Byte 6		Track number tens in ASCII
Byte 7	bit 0	1 when “Reading” indicator is on (front panel)
	bit 1	1 when “Repeat Track” indicator is on(front panel)
	bit 2	1 when “Repeat All” indicator is on (front panel)
	bit 3	1 when “CD PCM 2HC” indicator is on (front panel)
	bit 4	1 when “SACD 2CH” indicator is on (front panel)
	bit 5	reserved
	bit 6	reserved
	bit 7	1 when DVD disc is selected (DVD-V or DVD-A)
Byte 8	bit 0	reserved
	bit 1	1 when front panel display is off
	bit 2	1 when CDSA in Standby mode
	bit 3	1 when “No Disc” indicator is on (front panel)
	bit 4	reserved
	bit 5	reserved
	bit 6	1 when in pause
	bit 7	1 when audio phase inverted
Byte 9		<CR> (x0D)

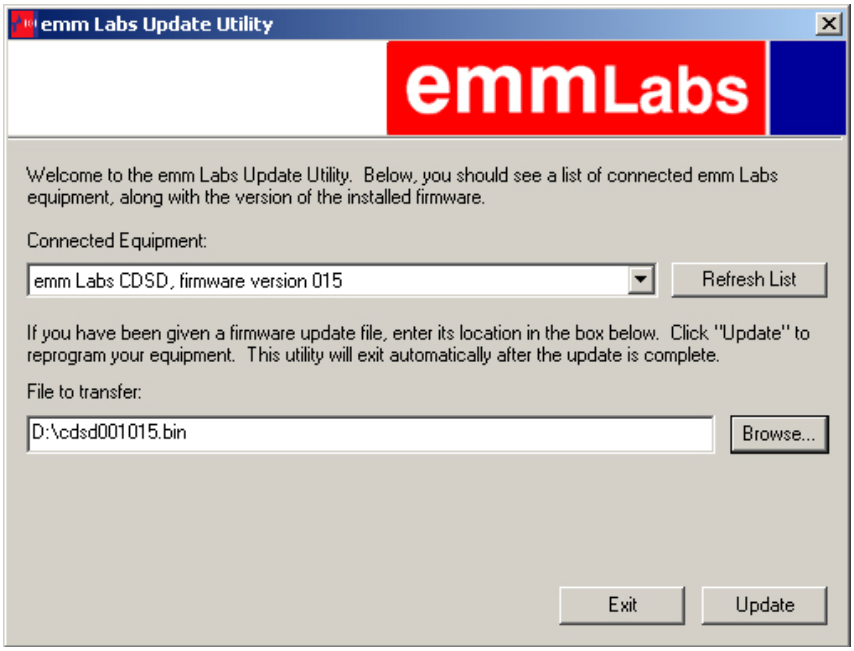
B: Upgrading the Software of your CDSA

Your CDSA is controlled by an internal processor that can be programmed with software to enhance or add new features. EMM Labs is constantly working to refine this software so your CDSA always offers the state-of-the-art sonic performance.

If a new update becomes available EMM Labs will distribute it along with a software application that will connect your CDSA via its USB connector to a PC.

First Time Installation and Upgrade Procedure:

1. Do not connect the CDSA yet to the PC
2. Launch the supplied application “emmsetup.exe” on your PC and closely follow instructions on the screen. Connect your CDSA to the PC only when told so.
3. When you reach the following screen, make sure to point the field “File to Transfer” to the file supplied by EMM Labs.
4. When completed, turn off power to the CDSA (switch on back panel), wait 15 seconds and power it back on again. DO NOT POWER OFF BEFORE PROGRAMMING IS COMPLETE (which can take up to 1 minute).


emm Labs Update Utility
emmLabs
Welcome to the emm Labs Update Utility. Below, you should see a list of connected emm Labs equipment, along with the version of the installed firmware.
Connected Equipment:
emm Labs CDSD, firmware version 015
Refresh List
If you have been given a firmware update file, enter its location in the box below. Click "Update" to reprogram your equipment. This utility will exit automatically after the update is complete.
File to transfer:
D:\cdsd001015.bin
Browse...
Exit
Update

Subsequent Upgrade Procedure:

After you have used the EMMSETUP utility for the first time a shortcut “EMM Labs Update Utility” is installed on the desktop of your PC as well as in the START>PROGRAMS>EMM Labs folder. There is no need to launch the “emmsetup.exe” application anymore.

1. Connect your CDSA to the PC via a USB cable
2. Launch “EMM Labs Update Utility” from the desktop of your PC and you should see the above screen directly.
3. Proceed from here as for first time installation.

IMPORTANT NOTE:

THE ENTIRE UPDATE PROCEDURE CAN TAKE UP TO 1 MINUTE. IT IS IMPORTANT THAT YOU DO NOT INTERRUPT POWER TO THE CDSA, NOR DISCONNECT THE USB CABLE, NOR TURN OFF THE PC DURING PROGRAMMING, OR ELSE YOUR CDSA WILL NOT BE ABLE TO BOOT NORMALLY.

In case the programming has been interrupted accidentally, please follow the steps below:

1. Turn off power to the CDSA via its back panel switch
2. Press and hold the Reset button on the back panel
3. Turn power back on. Release the Reset button only after the lights on the front panel turn on.
4. Proceed as described under “Subsequent Upgrade Procedure”.